

Modify the draft of Chapter 5 of our Book

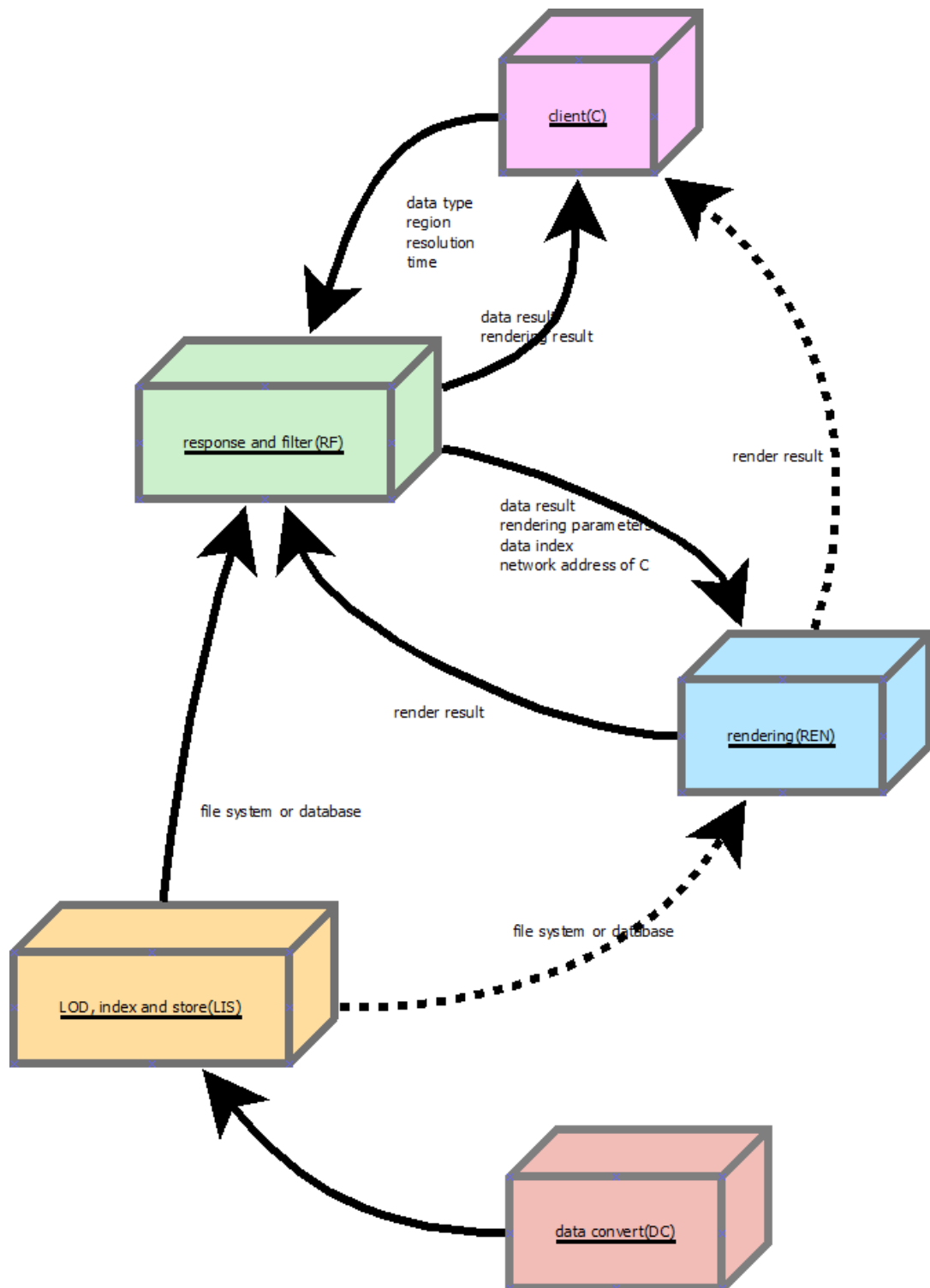
Name definition of server end of climate project

- Data convert: DC
- Index, LOD and store: ILS, using Hadoop
- Response and filters: RF, using PVM
- Rendering: REN, using MPI
- Client: C

Detail the jobs of server end of climate project

- Data convert (DC)
 - Volume data, such as temperature field, pressure field, wind speed field.
 - Image data, such as cloud image from satellite.
 - Information data, such as the routing of typhoon, population, road, city.
 - Geographic data, such as terrain.
- Index, LOD and store (ILS)
 - LOD. Generate LOD levels.
 - Index. Index the data.
 - Store. store the data
- Response and filters (RF)
 - Receive. The master server receives requests, including data type, region, resolution and time.
 - Index. The master server calculate the index of data in the region and match the resolution and time.
 - Deliver. The master server split the request into small pieces according to index. Then deliver the sub-requests to slave servers.
 - Fetch. Slave servers fetch the data from data servers.
 - Filter, such as isosurface. Slave servers filter the data.
 - Gather. The master server gathers the filter results from slave servers.
 - Reply. The master server sends the combined result back to client.
- Rendering (REN)
 - Render to texture.
 - Mesh drawing, such as marble and terrain
 - Point drawing, such as places, stars.
 - Line and strip drawing, such as road, route,
 - Billboard drawing, such as place name, typhoon name.
 - Sky, A fake atmosphere.
 - Texture mapping.
 - Volume rendering.

Interfaces of project Climate



- Between DC and LIS
 - will be developed.
- Between LIS and RF
 - this interface is quite simply, data can be accessed from file system and database.
- Between RF and REN
 - RF will send the filter result and rendering parameters to REN.

- or RF will tell REN where to fetch the data together with the rendering parameters.
- or the network address of C will be sent too.
- REN will send the render result to RF
- or REN will send the render result directly to C.
- Between RF and C
 - Before requesting data, C and RF will build up a **SESSION**. Because the data may be reused in a certain period of time, the server will not purge the data until the **SESSION** is closed.
 - C will send RF data requests.
 - RF will reply to C.
- Between ILS and REN
 - the same as the interface between ILS and RF

Next to do

- Talk on visualization data storage.
- Talk on interfaces with Yuxin Ma, Biao Zhu, Haidong Chen.
- Talk on the implementation method of pipeline on server end with Haidong Chen and Yixin Ma.
- Talk on **SESSION** with Haidong Chen.
- Make a schedule.
- Code interfaces in C++.